

Response to Office Action
Dated May 29, 2003

Appln. No. 10/003,901

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REMARKS

This is in response to the Office Action dated May 29, 2003. Reconsideration is respectfully requested.

Request for Extension of Time

Applicant respectfully requests that the period for reply be extended three months, from August 29, 2003 to November 29, 2003 under 37 CFR 1.136. A check in the amount of \$475 is enclosed to cover the three-month extension fee pursuant to 37 CFR 1.17(a) (3).

Allowable Claims

Applicant acknowledges, with appreciation, that Claims 14 and 15 are allowed, and Claims 7, 10, 11 and 19 would be allowable if rewritten in independent form to include the recitation of their respective base claims and any intervening claims upon which they depend.

Objections to Disclosure

Applicant has amended the spelling error on page 2 in response to the Examiner's objection.

Rejections of Claims Under 35 USC 112

Claims 20-23 are rejected as indefinite under 35 USC 112. Claim 20, as herein amended, recites weaving the warp and fill yarns at respective first and second tensions to form a tube, and, over a portion of the tube, weaving either the warp or fill yarns at a third tension less than the first or second tensions to create a region of greater flexibility over that portion of the tube. The claim goes on to recite that if it is the warp yarns that are woven at the third tension, then the flexibility of the tube will be increased in the warp direction over the region, and if it is the fill yarns that are woven at the third tension, then the increase in

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flexibility will be in the fill direction of the tube (radially) over the region. If Claim 20 as amended is still unclear, then the Examiner is invited to call the undersigned to discuss further possible amendments.

Rejections Under 35 USC 102

Claims 1, 4, 6, 12 and 13 are rejected as anticipated by U.S. Patent No. 5,653,746 to Schmitt. Claims 1-6, 8, 9 and 20-23 are rejected as anticipated by U.S. Patent No. 2,117,974 to Moore. Applicant respectfully traverses the rejections on the basis of Schmitt and Moore in the arguments presented below.

Summary of the Invention

The invention concerns a graft compatible with living tissue, for example, vascular vessels, for the treatment of disorders such as aneurysms. The graft is woven in the form of a tube and has regions of greater and lesser flexibility in either or both the warp or fill directions so that the graft may better accommodate the shape and size of the vessel into which it is implanted. The regions of differing flexibility may be formed by weaving the yarns at different tensions over portions of the graft (as recited in Claims 1, 6 and 14) or by including relatively fewer yarns in weaving the portions (as recited in Claim 16). When the yarns that are woven under less tension are in the warp direction, then the increased flexibility will be in the warp direction (usually longitudinally along the graft). When the yarns that are woven under less tension are in the fill direction, then the increased flexibility will be in the fill direction, usually radially relative to the graft. The invention also includes a method of making such a graft, recited in Claims 20-23, by weaving portions of the tube under greater and lesser tension.

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The Argument

Schmitt does not anticipate any of the applicant's claims because it does not teach every element of any of the claims. Independent Claims 1 and 6, for example, recite that yarns comprising the tube forming the graft are woven at different tensions over different portions of the graft to create regions of differing flexibility. This is not disclosed in Schmitt, the Examiner's remarks to the contrary notwithstanding. Schmitt, by contrast, teaches using drawn, undrawn and partially drawn yarns to control the ability to expand a graft after it is formed and implanted. The drawing process does not take place during weaving of the graft but prior thereto as expressly recited in Schmitt at column 3, lines 39-45, and reproduced below:

"As is well-known to those skilled in the art, the yarns used in a woven product are typically treated and processed prior to weaving. This treatment commonly includes the step of "drawing" the yarns, i.e., longitudinally stretching the yarns beyond their yield point until complete plastic deformation is accomplished."

Schmitt teaches using undrawn or partially drawn yarns to create expandable regions of a graft, the drawn yarns being non-expandable (being already beyond their plastic limit due to the drawing process) and the undrawn or partially drawn yarns being further expandible up to their fracture limit. As noted, the drawing process is a treatment which takes place before weaving, and nowhere does Schmitt teach or suggest drawing the yarns during weaving or weaving yarns at different tensions during the weaving process. Schmitt provides specifications for creating four examples of grafts, not one of which even mentions the yarn tension at which the weaving is to take place, let along specifying varying tensions over

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different portions of the graft as recited in applicant's claims.

Schmitt does not address yarn tension during weaving, is thus irrelevant to applicant's invention and cannot reasonably support a rejection of any claims on the basis of anticipation. Independent Claims 1 and 6 should be allowed over Schmitt in view of the arguments presented above. Furthermore, Claim 4, dependent on Claim 1, and Claims 12 and 13, dependent upon Claim 6, should also be allowable over Schmitt for the same reasons that Claims 1 and 6 are allowable.

Moore as a reference is equally irrelevant to applicant's claims, as it does not teach or suggest yarns being woven at less tension over a portion or region of the tube as recited in independent Claims 1, 6 and 20. Moore, at column 1, lines 42-50, teaches creating a tubular garment from elastic and non-elastic threads by weaving the non-elastic threads at a different tension from the elastic threads so as not to unduly limit the stretch of the elastic threads. However, the elastic and non-elastic threads are uniformly distributed over the entire garment (see Figure 4), and there is no difference in tension between the threads over one portion of the garment as compared to any other portion. This uniform distribution of threads creates a fabric having substantially uniform stiffness and elasticity over its entire surface which is utterly unlike applicant's invention, wherein there are distinct regions having different stiffness created by varying the tension at which the various regions are woven as recited in applicant's claims. Moore does teach, at column 2, lines 11-15, that the edge portions 11 of the garment are relatively softer than the rest of the garment. However, this softening effect is achieved by using elastic weft threads that are smaller in size or less strong than the weft threads used in

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the rest of the garment, as expressly stated at column 1, lines 38-41, and not by varying the tension at which the threads are woven. There is no teaching or suggestion of using varying tension during weaving to create regions of the garment having increased or decreased flexibility as claimed by the applicant.

Because it does not teach a woven item having regions of varying flexibility created by weaving portions of the item at different tensions, Moore is irrelevant to applicant's invention and cannot reasonably form the basis of an anticipation rejection of any of applicant's claims. Claims 2-5 depend upon Claim 1, Claims 8 and 9 depend upon Claim 6 and Claims 21-23 depend upon Claim 20. All of these dependent claims should be allowed over Moore for the same reasons that their respective independent claims are allowable, as provided in the arguments presented above.

Claims 12, 13 and 16-18 are rejected as obvious over Moore. However, Claims 12 and 13, dependent upon Claim 6, should be allowable for the same reasons that Claim 6 is allowable. Similarly, Claim 18, dependent upon Claim 16, should be allowable over Moore for the same reasons that Claim 16 is allowable.

Summary

Neither cited reference teaches a woven article having regions of different flexibility formed by weaving the yarns comprising the article at different tensions over different portions of the article. Schmitt does not teach or suggest anything about the tension of the yarns during weaving, and Moore teaches yarns having different tension distributed uniformly over the article and, hence, having uniform flexibility over the entire article. Both references are irrelevant to the application and cannot reasonably serve as

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the basis for a rejection of the claims. Applicant contends that the claims as herein amended are allowable over the cited references and requests that the rejections be withdrawn and the application passed to issue.

Respectfully submitted,

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Enclosure

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